

WHAT IS CLAIMED:

- 1 1. An apparatus, comprising:
2 a substrate defining a plane;
3 a first conducting plate substantially normal to the substrate; and
4 a second conducting plate substantially normal to the substrate and deformable
5 in response to a pressure.
- 1 2. The apparatus of claim 1, wherein the substrate is associated with a
2 microelectromechanical system wafer.
- 1 3. The apparatus of claim 1, wherein the second conducting plate is
2 deformable in a direction substantially in the first plane.
- 1 4. The apparatus of claim 3, wherein the two conducting plates are electrically
2 isolated, and the pressure is to be measured based at least in part on capacitance
3 between the two conducting plates.
- 1 5. The apparatus of claim 4, wherein a voltage level is associated with at least
2 one of the conducting plates.
- 1 6. The apparatus of claim 1, wherein the first conducting plate is also
2 deformable in response to the pressure.
- 1 7. The apparatus of claim 6, wherein the conducting plates comprise
2 diaphragms.

1 8. The apparatus of claim 1, wherein the substrate includes at least one of: (i)
2 a silicon layer, (ii) an oxide layer, and (iii) a bonding layer.

1 9. The apparatus of claim 1, wherein the substrate is bonded to a backing
2 wafer.

1 10. An apparatus, comprising:
2 a substrate defining a first plane;
3 a first finger, including a first pair of conducting plates, wherein at least one of
4 the conducting plates is substantially normal to the substrate and deformable in
5 response to pressure, and wherein a vacuum is provided between the first pair of
6 conducting plates; and
7 a second finger, including a second pair of conducting plates, wherein at least
8 one of the conducting plates is substantially normal to the substrate and deformable in
9 response to pressure, and wherein a vacuum is provided between the second pair of
10 conducting plates.

1 11. The apparatus of claim 10, wherein the first pair of conducting plates is
2 electrically isolated from the second pair of conducting plates.

1 12. The apparatus of claim 11, wherein pressure is to be measured based at
2 least in part on capacitance between the fingers.

1 13. The apparatus of claim 12, wherein (i) the first finger is part of a first
2 comb having a plurality of fingers that are electrically coupled to each other, and (ii)
3 the second finger is part of a second comb having a plurality of fingers that are
4 electrically coupled to each other and electrically isolated from the fingers of the first
5 comb.

1 14. The apparatus of claim 13, wherein fingers of the first are second combs
2 are interleaved.

1 15. The apparatus of claim 14, wherein the combs form an array of capacitors
2 connected in parallel.

1 16. The apparatus of claim 12, wherein the measured pressure is an absolute
2 pressure.

1 17. The apparatus of claim 12, wherein at least one of the conducting plates is
2 deformable in response to a first pressure and at least one of the conducting plates is
3 deformable in response to a second pressure, and wherein the measured pressure is
4 associated with the difference between the first and second pressures.

1 18. The apparatus of claim 12, wherein an increase in pressure is associated
2 with a decrease in capacitance.

1 19. The apparatus of claim 12, wherein an increase in pressure increases a
2 distance between one of the conducting plates of the first finger and one of the
3 conducting plates of the second finger.

1 20. The apparatus of claim 12, wherein air acts as a dielectric associated with
2 the capacitance.

1 21. A method, comprising:
2 providing a voltage to one of a first conducting plate and a second conducting
3 plate, the first conducting plate being substantially normal to a substrate defining a

4 plane and the second conducting plate being (i) electrically isolated from the first
5 conducting plate, (ii) substantially normal to the substrate, and (iii) deformable in
6 response to pressure; and

7 measuring pressure based at least in part on capacitance between the two
8 conducting plates.

1 22. A method, comprising:

2 on a wafer that includes a first non-conducting layer bonded onto a conducting
3 layer, etching substantially parallel trenches through the layers to form a plurality of
4 conducting plates substantially normal to a plane defined by the wafer, wherein at
5 least one conducting plate is to be deformable in response to pressure; and

6 bonding a second non-conducting layer onto the first non-conducting layer.

1 23. The method of claim 22, wherein pairs of conducting plates form fingers.

1 24. The method of claim 23, wherein a first set of fingers is formed on a first
2 comb and a second set of fingers is formed on a second comb, the fingers of the first
3 and second combs being interleaved.

1 25. The method of claim 24, further comprising:

2 etching away a portion of the second non-conducting layer and the first non-
3 conducting layer to expose a portion of the conducting layer.

1 26. The method of claim 25, further comprising:

2 creating a vacuum within a finger.

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1 27. The method of claim 25, further comprising:
2 bonding a cap wafer onto the second non-conducting layer.

1 28. The method of claim 27, wherein the cap wafer includes at least one of: (i)
2 a ground via, (ii) a voltage via, (iii) a first pressure via, and (iv) a second pressure via.

1 29. The method of claim 22, wherein at least one pressure input cavity is
2 formed while etching the trenches.

1 30. A system, comprising:
2 a microelectromechanical system pressure sensor, including:
3 a substrate defining a plane,
4 a first conducting plate substantially normal to the substrate, and
5 a second conducting plate substantially normal to the substrate and
6 deformable in response to a pressure; and
7 a pressure dependent device.

1 31. The system of claim 30, wherein the pressure dependent device is
2 associated with at least one of: (i) a pressure display, (ii) a tire pressure monitor, (iii)
3 an ultrasonic transducer, (iv) a blood pressure sensor, and (v) a barometer.

1 32. An apparatus, comprising:
2 a substrate defining a plane; and
3 a deformable plate substantially normal to the substrate and deformable in
4 response to a pressure.

1 33. The apparatus of claim 32, wherein an amount of resistance associated
2 with the deformable plate varies with stress.

1 34. The apparatus of claim 33, wherein the substrate is associated with a
2 microelectromechanical system wafer.

1 35. The apparatus of claim 34, wherein the deformable plate is a diaphragm
2 deformable in a direction substantially in the plane defined by the substrate.

1 36. The apparatus of claim 35, wherein the diaphragm is associated with at
2 least one of: (i) piezoelectric characteristics, (ii) piezoresistance characteristics, (iii)
3 an embedded device having piezoelectric characteristics, and (iv) an embedded
4 device having piezoresistance characteristics.